

## REMARKS

As a preliminary matter, Applicants thank the Examiner for the indication of allowable subject matter in claims 164-166. Independent claim 163 has therefore been herein cancelled without prejudice, and claim 164 rewritten in independent form. Accordingly, Applicants submit that claims 164-166 are in condition for allowance by this amendment.

As a second preliminary matter, the Specification stands objected to for failing to provide proper antecedent basis for the claimed subject matter. Specifically, the Examiner asserts on page 2 of Paper No. 31 that the amendments to claim 168 from the previous Amendment E, filed September 25, 2003, “introduces new matter into the disclosure.” This assertion is erroneous, and Applicants traverse as follows.

First, Applicants wish to point out to the Examiner that no substantive amendments were made to claim 168 in Amendment E. Applicants merely rewrote claim 168 in independent form. Therefore, only the technical format of claim 168 was changed, and claim 168 therefore stands in its exact same substantive form as originally filed with this Application on October 12, 2000. Applicants submit that this new matter objection is highly suspect when first asserted against an original claim after six substantive Responses, and three Continuations. This late examination of claim 168 on the merits supports the previous arguments Applicants submitted, namely, that the Examiner has not fully responded to all of Applicants’ previous meritorious responses.

Nevertheless, although Applicants again submit that the entirety of claim 168 is fully supported by the Specification, in order to expedite prosecution, Applicants

have amended claim 168 herein to remove the language the Examiner finds confusing. Reconsideration and withdrawal of the outstanding objection are therefore respectfully requested.

Claims 168-170 stand rejected under 35 U.S.C. 112, first paragraph, for failing to comply with the written description requirement. Specifically, the Examiner has simply repeated the objection, discussed above, as a Section 112 rejection of the claim in question. Applicants therefore respectfully traverse for at least the reasons discussed above. Claim 168 was not substantively amended in Amendment E, and the original claim was, and is, fully supported by the Specification. Additionally, Applicants submit that the broadening amendments made to claim 168 in response to the above objection have overcome this rejection as well.

Claims 150-151, 154-163, and 168-170 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Koma (U.S. 5,608,556) in view of Hirata et al. (U.S. 5,953,093). Because this rejection is merely repeated from the previous Office Action (Paper No. 26), Applicants respectfully traverse this rejection for at least the reasons of record. Neither of the cited references, whether taken alone or in combination, shows a first domain regulating means substantially surrounding a second domain regulating means when viewed perpendicularly to the surfaces of the substrates, as in claim 150 of the present invention, as amended.

The Examiner provides his rationale, with a drawing from the Hirata reference for support, for the continued rejection of these claims on page 4 of Paper No. 31. The Examiner's rationale and drawing, however, fail to establish a *prima facie* case

of obviousness against the present invention, and also failed to rebut any of Applicants' previous arguments.

First, the drawing provided by the Examiner (Fig. 14 from Hirata) contradicts the actual recited claim language of claim 150 of the present invention. Lines 12-15 (last paragraph) of claim 150, as last amended, specifically recited that the "substantially surrounds" feature of the present invention is when vertically seen to the substrates, or in other words, perpendicularly to the substrate surfaces. Although Applicants submit that the vertical direction in the claim was already sufficiently defined as being perpendicular to the substrate surfaces (lines 4-5), claim 150 has been amended herein in order to better grammatically emphasize this aspect of the claim. The Examiner had failed to properly consider this clear feature of claim 150 in asserting his rationale for the continued rejection of the claim. Fig. 14 of Hirata is clearly defined as a cross-sectional view of Hirata's liquid crystal display ("LCD"). (See col. 14, lines 37-38). In other words, the illustration provided by the Examiner is the view seen horizontally, or parallel to the substrates, and therefore a direct contradiction to the plain language of claim 150.

Applicants again respectfully point out to the Examiner that Fig. 12 of Hirata is the correct view that is perpendicular to the surfaces of the substrates. Section 2143.03 of the MPEP requires the Examiner to, when attempting to establish a *prima facie* case of obviousness, first demonstrate where all of the features and limitations of the claimed invention can be found within the prior art. Because the Examiner here has failed to establish where the "substantially surrounds" features of the present invention

may be found anywhere from this Hirata Fig. 12 perspective, a *prima facie* case of obviousness has not been established.

Second, and irrespective of these different views shown by Hirata, neither Fig. 12 nor Fig. 14 shows a first domain regulating means that substantially surrounds a second domain regulating means. In addition to citing the wrong view from Hirata, as discussed above, the Examiner has here failed to give any reasonable interpretation to the plain language of the claims. Specifically, Applicants submit that no reasonable interpretation of the word “surrounds” is supported by *either* Fig. 12 or Fig. 14 of Hirata.

Merriam-Webster’s Collegiate Dictionary, 10<sup>th</sup> Ed., 1994, defines the term “surround” as “enclosed on all sides.” Roget’s II: The New Thesaurus, 3<sup>rd</sup> Ed., 1995, defines the term “surround” similarly, as “shut in on all sides” and also as “encircled.” All of the descriptions in the several embodiments presented in the Specification regarding these claims are consistent with this plain and common meaning of the term. Only the Examiner’s interpretation appears to differ with this common definition, and with the Specification to the present Application.

The Examiner interprets the lower insulating film lines 31f of Hirata as analogous to the first domain regulating means of the present invention, and the upper insulating film lines 31d of Hirata as analogous to the second domain regulating means of the present invention. This analogy though, fails to show all of the recited features of claim 150. Neither of the film lines 31d and 31f could be reasonably interpreted -- by any view -- as “substantially surrounding” the other.

Even the one-dimensional view shown in Fig. 14 of Hirata, at most, shows the film lines 31d and 31f alternating in a parallel fashion next to one another. Nothing in Fig. 14, however, shows one of the film lines encircling or surrounding the other on all sides (or even more than two sides, for that matter). Fig. 12 of Hirata also fails to overcome this plain deficiency from Fig. 14. Fig. 12 of Hirata at most shows the film lines 31d and 31f alternating in a wavy pattern, but always in parallel. Parallel lines, by definition, can never meet or cross, and therefore can never “substantially surround” each other. For at least these additional reasons, the Examiner has failed to establish a *prima facie* case of obviousness against claim 150 of the present invention, and the Section 103 rejection thereto should again be withdrawn.

Additionally, Applicants specifically traverse the assertion made by the Examiner at the bottom of page 4 of Paper No. 31, namely that “the first and second domain regulating means [31f and 31d of Hirata] having (sic) a function of regulating azimuths of orientations of liquid crystal molecules.” This assertion is incorrect, and specifically contradicted by the express teachings of Hirata. As previously pointed out to the Examiner, Hirata plainly teaches that its insulated film lines control the *pretilt* of the liquid crystal molecules (see col. 14, lines 1-13), and not their *orientation*. Hirata unambiguously teaches that orientation of the liquid crystal molecules is controlled by the alignment film 31e (see col. 14, lines 25-29), and not the insulating film lines.

One skilled in the art is well apprised that pretilt is a different phenomenon than orientation of the liquid crystal molecules. Applicants respectfully submit that the Examiner’s apparent inability to distinguish between pretilt and orientation is further

demonstrated by his interchanging Figs. 12 and 14 of Hirata. The pretilt phenomenon may be best seen from the horizontal/parallel view to the substrate surfaces (Fig. 12 of Hirata), while orientation is generally only clearly seen from the vertical/perpendicular view (Fig. 14). Nowhere does Hirata ever teach that its insulating film lines control the azimuths of orientation of the liquid crystal molecules when viewed perpendicularly to the surfaces the substrates. This distinction between pretilt and orientation is not insignificant, and has been clearly distinguished by the viewing direction features of claim 150, as discussed above.

To even further clarify this distinction in the present invention, Applicants had previously amended claim 150 (Amendment E) to define the domain regulating means that regulate the azimuths of orientation as separate from the alignment layer. Hirata, on the other hand, teaches control of orientation of the liquid crystal molecules only with the alignment layer 31e, and then only in the rubbing direction of this alignment layer. To date, the Examiner has not yet cited any teaching or suggestion from any combination of prior art references that both of two domain regulating means may be protrusions or slits, and control the azimuths of orientation of liquid crystal molecules without an additional alignment layer. Accordingly, for at least these additional reasons, a *prima facie* case of obviousness is lacking against the present invention, and the rejection should be withdrawn for these reasons as well.

With respect to the Examiner's Section 103 rejection of claims 168-170, Applicants repeat the arguments discussed above with regard to the Examiner's Objection and Section 112 rejection, and respectfully traverse. Additionally, neither of


the cited reference, whether taken alone or in combination, teaches or suggests a protrusion-like structure formed within slits provided in the pixel electrodes.

As best seen in Fig. 51 of the present Application, for example, protrusions 20C appear entirely within the boundaries of the slits 21 that are provided in the pixel electrodes 13. Neither Koma nor Hirata shows any configuration even similar to Fig. 51. For further grammatical clarification, claim 168 of the present invention has therefore been amended to better define the protrusion-like structures as being within the slits, and that the slits are actually provided in the pixels. As acknowledged by the Examiner, Koma does not even teach or suggest protrusions. Hirata's insulating film lines 31d, 31f, on the other hand, even if they could be interpreted to be "protrusion-like structures," neither of these insulating lines is formed in the pixel electrode 31c, and neither should be fairly interpreted to be within the other, as the two lines only alternate in succession. (See Figs. 12-16). Accordingly, for at least these reasons, the Section 103 rejection of claim 168 (and its dependent claims 169-170) is respectfully traversed.

For all of the foregoing reasons, Applicants submit that this Application, including claims 150-151, 154-156, 164-166, and 168-171, is in condition for allowance, which is respectfully requested. The Examiner is invited to contact the undersigned attorney if an interview would expedite prosecution.

Respectfully submitted,

GREER, BURNS & CRAIN, LTD.

By   
Josh C. Snider  
Registration No. 47,954

**Customer No. 24978**

May 17, 2004

300 S. Wacker Drive  
Suite 2500  
Chicago, Illinois 60606-6501  
Telephone: (312) 360-0080  
Facsimile: (312) 360-9315

P:\DOCS\2803\64683\537194.DOC